

skin, caseous lymph nodes (bronchial and mesenteric), and a tuberculous ulcer of the ileum. Inoculation experiments with the mother's milk gave negative results. It was quite evident that both children were infected about the end of March, the older child dying quickly, the younger lingering for two months. Further investigation showed that the trained nurse, who had attended the mother in confinement, was at the time in poor health and coughed frequently. After a month's stay she went home and about July 1 tubercle bacilli were found in her sputum and lesions were discovered in her lungs. There can scarcely be a doubt that the nurse infected both babies by prolonged personal contact, either by kissing, sneezing, coughing, or breathing in their faces. It was also ascertained that a baby cared for by this same nurse nine months previously had recently died of bronchopneumonia.

In this case Snow believes that the avenue of infection and the primary lesion were in the digestive tract. The ileum, for about eight inches from the ileocecal valve, was firmly fixed in a mass of enlarged lymph nodes, and at this point was a circular area of ulceration of the mucosa, three quarters of an inch in width compressing the whole caliber of the intestine.

The Determination of the Caloric Value of Modified Milk.—GEORGE W. MOOREHOUSE (*Arch. of Pediat.*, February 1907, 86) gives a very simple method for estimating the caloric value of an infant's food, when the total quantity and the percentage formula are known. The method is as follows: Reduce the twenty-four hour amount to cubic centimeters, one ounce being equal to 29.5 c.c. Next determine the number of grams of fat, sugar, and proteids in the mixture by multiplying the number of cubic centimeters in the daily amount by the percentages of fat, sugar, and proteids. The calories from each constituent may be determined by remembering that a gram of fat furnishes 9.3 calories and a gram of sugar or proteid furnishes 4.1 calories. The calculation may be simplified by expressing the arithemetical processes by equations, thus: calories from fat = $Q \times 29.5 \times \frac{F}{100} \times 9.3 = Q \times F \text{ 2.74}$; and calories from sugar and proteids = $Q \times 29.5 \times \frac{(S \times P)}{100} \times 4.1 = Q \times (S \times P) \times 1.21$. The sum of these two values gives the total calories furnished by the mixture, and this figure divided by the weight of the child in pounds gives the calories per pound per day.

In a companion paper by J. J. THOMAS (*loc. cit.*, 82) a basis of comparison of the results obtained by Moorehouse's calculations is furnished. Quoting Finkelstein this author states that the average breast-fed infant draws daily during the first weeks of life one-fifth of its body weight; from the middle of the first to the end of the second quarter of the first year, one-sixth to one-seventh; and during the latter half of the first year, one-eighth of its body weight. Expressed in round numbers per kilo of body weight, during the first three months it draws 150 c.c.; during the second somewhat less; and during the third 120 to 130 c.c. Expressed in terms of energy quotient (Heubner), or calories per kilo, the requirement during the first three months is 100 calories per kilo (45.4 calories per pound); during the second three months, between 100 and 90 (40.9 calories per pound); during the latter half of the first year the requirement gradually sinks to 80 or a trifle below (36.4 calories per pound).

In regard to artificially-fed children, Heubner is of the opinion that the assimilation of cows' milk requires more work of the infant than breast milk, hence his energy quotient is 120. Czerny and Keller disagree with this and consider both milks equal in this respect. Finkelstein gives an energy quotient of 90 to 125 (41 to 56 calories per pound), but to be on the safe side and avoid any possible bad effects from over feeding, he prefers to use the same quotient for breast and cow's milk.

By using the calculations offered by Dr. Moorehouse it becomes a very simple matter to estimate the energy quotient of any milk modification, taken by an infant under observation, and to place the prescription of milk formulæ upon a scientific rather than a purely empirical, clinical basis.

The Vaccine Treatment of Tuberculosis in Children.—CLIVE RIVIERE (*Brit. Med. Jour.*, 1907, i, 859) has employed tuberculin injections in the treatment of tuberculosis of children, employing the opsonic power of the blood to determine the proper dosage and the proper interval between the injections. Before the injections the index was always lower than normal; throughout the injections it was kept at a higher point than normal. A high opsonic index is no contra-indication against the injections, particularly if the patient seems very low; the opsonic power is steadied, and though it may rise no higher, clinical improvement is usually made manifest. The adult dose is $\frac{1}{2000}$ mg.; children between ten and twelve may be given $\frac{1}{3000}$, at five years $\frac{1}{4000}$ mg., and at one year from $\frac{1}{8000}$ to $\frac{1}{12000}$; it is always safer to begin with a dose rather too small than too large. The intervals between injections are best kept at two weeks as long as the reaction is prompt. The index is examined before and after exercise, an injection is then given, and the examination made again in twenty-four hours, seventy-two hours, one, and two weeks afterward. The details of a number of cases are given, among them being cases of tuberculous dactylitis and superficial abscess, of tuberculous glands, of psoas abscess, of tuberculous joint disease, of abdominal and pulmonary tuberculosis. He sums up his article by stating that in tuberculin we have a most valuable remedy for localized tuberculosis. There is nothing dramatic in its effect, but with proper dosage a steady up-hill progress occurs both in the local conditions and in the general health. This improvement corresponds with an increase of opsonic power as shown by the alternate improvement and relapse in superficial lesions with the rise and fall of the opsonic index of the blood. Tuberculin is also of value in less localized infection especially if nutrition be not greatly impaired. With marked wasting and general illness no good results should be expected; yet, under such conditions, tuberculin may be the turning point in a down-hill course, so that unless the lesions are known to be widespread it is still worthy of trial. Tuberculin cannot take the place of surgical procedures, but should be used in conjunction with these. Caseous material must always be removed and this is best done when the opsonic index is high. If tuberculin is given sufficiently early, many cases would escape surgical interference. Secondary infection, always present with open tuberculous lesions generally lessens with improvement in the tuberculous process. Tuberculin treatment should only be undertaken by those who have given it special study.